# AUCC 2015 PhD/MPhil Student Workshop
# 04 November 2015
# Gold Coast, Australia

## Report on the Project Accomplishments

The AUCC 2015 PhD/MPhil Student Workshop was held on 04 November 2015. The Workshop was organised in conjunction with the 2015 Australian Control Conference – AUCC 2015. However, it was an event on its own right and was held on the day prior to AUCC 2015 Conference.

The AUCC conference series (established in 2011) provides a forum for researchers, students and control engineers to discuss current problems arising in control engineering research and industrial practice. It is focused on nurturing student needs and profiling them to become able control system scientists and practitioners. The PhD/MPhil student workshop is an example of such a student-centric activity.

The PhD/MPhil Student Workshop series (established in 2011) is aimed at assisting postgraduate students in addressing their research tasks, completing thesis and profiling their career pathway towards becoming control system scientists and practitioners. Students were invited to present the focal point of their research problem (problem formulation, most recent results and outstanding issues), and report on a progress to date, while the workshop participants (invited academics and students) were asked to contribute to the problem analysis and share their ideas.

The Workshop was conducted by Professor Minyue Fu, the University of Newcastle, Australia, and Associate Professor & Reader Ying Tan, the University of Melbourne, Australia.

Twenty seven students participated in the Workshop while twenty three of them elaborated on their research topics. The Workshop Final Program was structured as follows:

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**AUCC 2015 PhD/MPhil Student Workshop**
Wednesday 04 November 2015
Watermark Hotel & Spa, Gold Coast
Atlantis 3

**Workshop Convenors:**
Associate Professor and Reader Ying Tan, the University of Melbourne
Professor Minyue Fu, the University of Newcastle

**07:30 – 08:00 Workshop Registration & Refreshments**

| Time | Presenter | Topic |
|---|---|---|
| 08:00 – 08:15 | Gerrad Duffy, Griffith University | Online Process Dynamic Deadtime Estimation Artificial Disturbance Detection |
| 08:15 – 08:30 | Shohana Deeba, the University of Queensland | Developing Control Strategies for Battery Management Systems in Electricity Distribution Network |
| 08:30 – 08:45 | Zhiyong Sun, the Australian National University | Equilibrium Analysis in Rigid Formation Control System |
| 08:45 – 09:00 | Minh Cuong, Deakin University | Observer Design for one Sided Lipschitz Nonlinear System |
| 09:00 – 09:15 | Arash Khodaparastsichani, the University of New South Wales, Canberra | Entanglement in Translation Invariant Linear Quantum Stochastic Networks |
| 09:15 – 09:30 | Kianoosh Sultani Naveh, the University of Queensland | Geometric Approach for Optimal Control of Serial Chains |
| 09:30 – 09:45 | Jonathan Eden, the University of Melbourne | Analysis and Control of Multi-link Cable Driven Manipulators |
| 09:45 – 10:00 | Jacek Mocki, Griffith University | Railway Interlocking Process: A Formal Method for Documenting and Evaluating Railway Junction Signalling and Interlocking |

**10:00 – 10:30 Refreshments & Networking**

| Time | Presenter | Topic |
|---|---|---|
| 10:30 – 10:45 | Seyed Eman Mousavinejad, Griffith University | Advanced Terminal Sliding Mode Control Approach to Integrated Steer-by-Wire and Differential Braking of Ground Vehicles |
| 10:45 – 11:00 | Ahmed Jazlan, the University of Western Australia | Frequency Weighted Model Order Reduction for Linear and Bilinear System |
| 11:00 – 11:15 | Duc Tran, the University of Newcastle | Stability Analysis Technique for Discrete Time Systems |
| 11:15 – 11:30 | Fida Rafi, Griffith University | Zero Dynamic Controller Design for an Unbalanced Microgrid Network |
| 11:30 – 11:45 | Muhammad Qamar Raza, the University of Queensland | Short Term Load and PV Forecasting |
| 11:45 – 12:00 | Salman Hafeez, the University of Newcastle | Optimal Control of Integrated Assessment Model of Climate Economy |
| 12:00 – 12:15 | Gokul Siv a Sankar, the University of Melbourne | Robust Model Predictive Control of Diesel Engine Air Path |

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| 12:15 – 12:30 | Aymen Ahmed Salih, Griffith University | Intelligent algorithm for controlling irrigation process in multi-crops farms |

**12:30 – 13:30 Lunch & Networking**

| Time | Presenter | Topic |
|---|---|---|
| 13:30 – 13:45 | Haoquan Liu, the University of Queensland | Optimizing Dragline Operation Sequence in Excavation of a Block |
| 13:45 – 14:00 | Shamiur Rahman, Griffith University | Power Management and Control of a Hybrid AC/DC Microgrid Integrated with Renewable Energy Resources and Electric Vehicles |
| 14:00 – 14:15 | Anna Skobeleva, the University of New South Wales, Canberra | Source Seeking and Environmental Exploration by Means of Autonomous Mobile Robots |
| 14:15 – 14:30 | Foad Taghizadeh, Griffith University | Grid Interconnection of Micro-grid with Smart-transformer with Power-quality Improvement Features |
| 14:30 – 14:45 | Khoa Tran, the University of Newcastle | Random sampling for Bayesian Inference in Dynamic Models. |
| 14:45 – 15:00 | Fisher Grubb, Griffith University | Hardware in the Loop: Integrating Simulink with the External Embedded Linux Beaglebone Black Processor Board for Programming, Trouble Shooting and Performance Benchmarking |
| 15:00 – 15:15 | Amenah Abdulhadi Saleh, Griffith University | Adaptive intelligent algorithm to control traffic light in the path of emergency car in order to optimize the green light period in each traffic light period |
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| END OF THE WORKSHOP | | |

**15:30 – 16:00 Refreshments & Networking**

NOTE:

All participants of the Student Workshop were invited to attend, free-of-charge, the ASES – dSPACE Workshop on “Faster, Better Control Systems Development using dSPACE Systems” which was organised as a part of the AUCC 2015 Conference activities.

The Workshop was a great success, the best so far. The received CSS Outreach Funds contributed to it significantly as, thanks to the Funds, the attendance at the Workshop was very high. The CSS Outreach Funds sponsorship was dully acknowledged at both the Workshop web site (http://www.aucc.org.au/AUCC2015/Workshop.html) and all the Workshop Promotional Fliers.

Mr Jacek Mocki, PhD Student, Griffith University and Business Development Manager, Motzky Pty Ltd, discussed the Railway Interlocking issues.

The AUCC 2015 PhD/MPhil Workshop Participants – the photo was taken at the very end of the Workshop

Respectfully submitted

Professor Ljubo Vlacic

The AUCC 2015 PhD/MPhil Student Workshop Chair